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# Factors Associated with Youth Delinquency and Victimization in Toronto, 2006

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## Crime and Justice Research Paper Series

# Factors Associated with Youth Delinquency and Victimization in Toronto, 2006

**by Klarka Zeman**
Culture, Tourism and the Centre for Education Statistics, Statistics Canada

**and Angela Bressan**
Canadian Centre for Justice Statistics, Statistics Canada

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## Abstract

This research paper explores youth delinquency using data from the International Youth Survey as reported by Toronto youth in 2006. It builds on the first report to use these data which found that delinquency was more prevalent among youth who were male, older and from single-parent and step families, and less prevalent among immigrant youth (Savoie, 2007).

Through a series of logistic regression models, the study examines how the observed relationships between self-reported youth delinquency and the demographic variables of age, sex, family composition and generational status are affected by the addition of factors related to school, victimization and peer and family relationships.

Detailed findings are presented for both property and violent delinquency. Although there were differences across the two types of delinquency, the results showed that factors related to low school commitment, experiences of victimization and negative family and peer relationships were associated with greater chances of involvement in delinquent behaviour, over and above the sex, age and immigrant status of youth.

# Introduction

The International Youth Survey (IYS) was conducted for the first time in Canada in 2006. This is the Canadian version of the International Self-Reported Delinquency Study conducted in over 30 countries in that same year (ISRD2 Working Group, 2005). The target population for this survey was Toronto students in grades 7, 8 and 9. Respondents provided information about their involvement in delinquency, as well as a wide range of information about individual, family, peer and school characteristics.

The first report to use these data (Savoie, 2007) described the prevalence of youth delinquency and associated risk factors, as well as the prevalence of youth victimization. The report identified three groups of youth who were more likely to report delinquency in the 12 months preceding the survey: boys, youth from single-parent and step-parent families and older youth. In addition, the results indicated that immigrant youth were less likely to report delinquency than their native-born counterparts.

In this study, the investigation is broadened to include other factors that have been linked to delinquency in previous self-report research including low levels of school commitment (Resnick et al., 1997), experiences of victimization (Fitzgerald, 2003), and negative family and peer relationships (Sokol-Katz, Dunham and Zimmerman, 1997). The goals of this study are to examine how these additional factors are associated with self-reported delinquency in the sample of Toronto youth, and whether or not the observed relationships between delinquency and age, sex, family composition and immigrant status change after accounting for these additional risk factors. We investigate factors associated with property-related and violent delinquency separately as previous research has demonstrated that these two types of behaviour are associated with different risk factors (Sprott, Jenkins and Doob, 2000).

We present a series of logistic regression models to examine the associations of different types of risk factors to property (Table 1) and violent delinquency (Table 2). In these tables, the demographic, or baseline, model (Model 1) shows the effects of age, sex, immigrant status, and family composition on the chances of youth reporting property and violent delinquency in the previous year. In subsequent models, we add school-related variables (Model 2), victimization variables (Model 3), and peer and family variables (Model 4) to assess their separate contributions to self-reported youth delinquency, over and above the demographic characteristics. Finally, we add all of the factors simultaneously in a last model (Model 5) to assess their relative importance in explaining the likelihood of youth reporting delinquency.

# Findings

## Who reports delinquency?

The 2006 IYS data showed that 13% of Toronto youth in grades 7, 8 and 9 reported committing at least one property-related act of delinquency. The same proportion (13%) also reported committing at least one violent act of delinquency within the 12 months prior to the survey.[1]

Consistent with research on delinquency across Western countries (Loeber and Farrington, 2001), the demographic model in this study showed that sex, age and family composition were significant predictors of both property (Table 1) and violent delinquency in youth (Table 2), while immigrant status was significantly associated with a decrease in property delinquency.

The results showed that the odds of boys reporting at least one act of property delinquency were about 55% higher than for girls, and the odds of boys reporting at least one act of violent delinquency were over two and one-half times higher than for girls. Each one-year increase in age was linked to a 47% increase in the odds of reporting property delinquency, and a 23% increase in the odds of reporting violent delinquency. In addition, youth from single-parent families had odds of reporting property delinquency that were about two times higher than those in intact (i.e., two biological-parent) families. Finally, those from step/blended families had odds of reporting both property and violent delinquency that were roughly two and one-half times higher than those living in intact families.

Little is known about the relationship between immigrant status and delinquency in the Canadian context, although previous work in the United States suggests that immigrant youth whose parents have more resources and education at the time of immigration experience better outcomes (Zhou, 1997). In this study, recent immigrants, or youth who immigrated to Canada after the age of 5 years, had lower chances of reporting property delinquency. The odds of recent immigrant youth reporting at least one act of property delinquency in the last year were 60% lower than those for native-born Canadians. However, there were no significant differences in the chances of reporting a property offence between native-born Canadians and either youth who arrived in Canada as young children (i.e., before the age of 5 years) or second generation youth who were born in Canada but whose parents were born outside of the country. There was no evidence that reporting violent delinquency differed between native-born Canadians and any other immigrant status type (Table 2).

## Text box 1

### Variables used in this study[2]

#### Dependent variables

**Property delinquency** measures whether or not youth reported committing at least one property-related delinquent act in the last 12 months.

**Violent delinquency** measures whether or not youth reported committing at least one violent delinquent act in the last 12 months.

#### Independent variables

**Sex** includes female and male.

**Age** ranges from 12 to 17 years.

**Generational status** measures immigrant status and age at first immigration to Canada.

**Family composition** includes intact, single-parent, step/blended family or other family situation.

**Negative attitudes towards school** measures feelings towards or observations about school as reported by youth.

**Perception of school safety** measures perceptions of safety at school as reported by youth.

**University aspirations** measures aspirations to attend university as reported by youth.

**Skipping school** measures if and how often youth reported skipping school in the last 12 months.

**Victimization** measures whether or not youth reported having been hit, stolen from, bullied at school or threatened in the last 12 months.

**Discrimination** measures whether or not youth reported ever having been discriminated against.

**Positive mother-youth relationship** measures whether or not youth reported getting along with their mother.

**Positive father-youth relationship** measures whether or not youth reported getting along with their father.

**Goes out at night** measures whether or not youth reported going out at night without their parents.

**Time spent with family** measures with whom youth reported spending the majority of their time: alone, with family or with friends.

**Illegal activities acceptable to peer group** measures whether or not youth reported that their peer group considers illegal acts acceptable.

**Table 1**

**Adjusted odds ratios for property delinquency among youth by demographic, school, victimization, peer and family characteristics, 2006**

| | Model 1 | | Model 2 | | Model 3 | | Model 4 | | Model 5 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Demographic model | | School-related variables | | Victimization variables | | Peer and family variables | | Full model | |
| | odds ratio | 95% CI[1] | odds ratio | 95% CI[1] | odds ratio | 95% CI[1] | odds ratio | 95% CI[1] | odds ratio | 95% CI[1] |
| Sex (male) | 1.55*** | (1.21, 2.00) | 1.47** | (1.12, 1.93) | 1.41** | (1.11, 1.80) | 1.51** | (1.13, 2.02) | 1.29 | (0.97, 1.73) |
| Age (in years) | 1.47*** | (1.29, 1.67) | 1.25*** | (1.10, 1.44) | 1.46*** | (1.29, 1.67) | 1.21* | (1.04, 1.41) | 1.13 | (0.96, 1.32) |
| Generational status | | | | | | | | | | |
| Native-born[2] | 1.00 | ... | 1.00 | ... | 1.00 | ... | 1.00 | ... | 1.00 | ... |
| Second generation | 0.78 | (0.55, 1.10) | 0.71 | (0.49, 1.03) | 0.68* | (0.48, 0.97) | 0.99 | (0.70, 1.40) | 0.83 | (0.57, 1.20) |
| Immigrated when younger (before age 5) | 0.64 | (0.38, 1.10) | 0.62 | (0.33, 1.16) | 0.60 | (0.35, 1.02) | 0.90 | (0.51, 1.59) | 0.80 | (0.43, 1.48) |
| Immigrated when older (after age 5) | 0.40*** | (0.25, 0.65) | 0.46** | (0.28, 0.74) | 0.35*** | (0.21, 0.57) | 0.65 | (0.42, 1.01) | 0.64 | (0.40, 1.03) |
| Family composition | | | | | | | | | | |
| Intact family[2] | 1.00 | ... | 1.00 | ... | 1.00 | ... | 1.00 | ... | 1.00 | ... |
| Single-parent family | 1.99*** | (1.47, 2.69) | 1.56** | (1.16, 2.09) | 1.99*** | (1.47, 2.71) | 1.63* | (1.11, 2.37) | 1.55* | (1.07, 2.24) |
| Step/blended family | 2.58*** | (1.52, 4.40) | 2.03* | (1.16, 3.55) | 2.34** | (1.38, 3.97) | 2.39** | (1.40, 4.08) | 1.98* | (1.12, 3.51) |
| Other | 1.70 | (0.85, 3.39) | 1.65 | (0.75, 3.64) | 1.88 | (0.93, 3.81) | 1.64 | (0.83, 3.23) | 1.88 | (0.83, 4.24) |
| School-related variables | | | | | | | | | | |
| University aspirations | ... | ... | 0.57*** | (0.43, 0.77) | ... | ... | ... | ... | 0.59*** | (0.43, 0.80) |
| Skipping school | ... | ... | 1.71*** | (1.41, 2.07) | ... | ... | ... | ... | 1.41** | (1.13, 1.76) |
| Negative attitudes towards school | ... | ... | 1.03 | (0.96, 1.11) | ... | ... | ... | ... | 1.01 | (0.94, 1.10) |
| Perception of school safety | ... | ... | 1.20*** | (1.14, 1.25) | ... | ... | ... | ... | 1.14*** | (1.08, 1.20) |
| Victimization variables | | | | | | | | | | |
| Discriminated against | ... | ... | ... | ... | 1.32 | (0.98, 1.78) | ... | ... | 1.20 | (0.85, 1.70) |
| Bullied | ... | ... | ... | ... | 1.05 | (0.79, 1.41) | ... | ... | 1.09 | (0.81, 1.48) |
| Hit | ... | ... | ... | ... | 1.00 | (0.53, 1.91) | ... | ... | 0.70 | (0.35, 1.40) |
| Stolen from | ... | ... | ... | ... | 2.43*** | (1.77, 3.33) | ... | ... | 1.80*** | (1.28, 2.52) |
| Threatened | ... | ... | ... | ... | 2.18** | (1.29, 3.70) | ... | ... | 1.64 | (0.82, 3.28) |
| Peer and family variables | | | | | | | | | | |
| Positive mother-youth relationship | ... | ... | ... | ... | ... | ... | 0.92 | (0.51, 1.66) | 1.21 | (0.71, 2.07) |
| Positive father-youth relationship | ... | ... | ... | ... | ... | ... | 0.82 | (0.53, 1.25) | 0.92 | (0.60, 1.40) |
| Goes out at night | ... | ... | ... | ... | ... | ... | 2.97*** | (1.82, 4.86) | 2.57*** | (1.58, 4.19) |
| Time with family | | | | | | | | | | |
| Spends majority of time with family[2] | ... | ... | ... | ... | ... | ... | 1.00 | ... | 1.00 | ... |
| Spends majority of time alone | ... | ... | ... | ... | ... | ... | 1.99*** | (1.34, 2.97) | 1.77** | (1.18, 2.67) |
| Spends majority of time with friends | ... | ... | ... | ... | ... | ... | 1.93*** | (1.35, 2.77) | 1.78** | (1.20, 2.62) |
| Illegal activities acceptable to peer group | ... | ... | ... | ... | ... | ... | 4.80*** | (3.63, 6.35) | 3.73*** | (2.74, 5.08) |
| Model R-squared | 0.04 | | 0.10 | | 0.07 | | 0.12 | | 0.16 | |

... not applicable
* $p \leq 0.05$
** $p \leq 0.01$
*** $p \leq 0.001$
1. Confidence interval.
2. Reference category.

**Note:** Based on 2,778 youth aged 12 to 17.

**Source:** Statistics Canada, Canadian Centre for Justice Statistics, International Youth Survey, Toronto, 2006.

**Table 2**

**Adjusted odds ratios for violent delinquency among youth by demographic, school, victimization, peer and family characteristics, 2006**

| | Model 1 | | Model 2 | | Model 3 | | Model 4 | | Model 5 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Demographic model | | School-related variables | | Victimization variables | | Peer and family variables | | Full model | |
| | odds ratio | 95% CI[1] | odds ratio | 95% CI[1] | odds ratio | 95% CI[1] | odds ratio | 95% CI[1] | odds ratio | 95% CI[1] |
| Sex (male) | 2.53*** | (1.95, 3.30) | 2.51*** | (1.87, 3.37) | 2.30*** | (1.74, 3.04) | 2.81*** | (2.13, 3.71) | 2.39*** | (1.79, 3.26) |
| Age (in years) | 1.23** | (1.07, 1.41) | 1.02 | (0.88, 1.18) | 1.22** | (1.06, 1.40) | 1.00 | (0.86, 1.15) | 0.90 | (0.77, 1.05) |
| Generational status | | | | | | | | | | |
| Native-born[2] | 1.00 | ... | 1.00 | ... | 1.00 | ... | 1.00 | ... | 1.00 | ... |
| Second generation | 1.31 | (0.94, 1.81) | 1.24 | (0.86, 1.80) | 1.11 | (0.79, 1.56) | 1.71** | (1.22, 2.41) | 1.42 | (0.96, 2.10) |
| Immigrated when younger (before age 5) | 1.12 | (0.64, 1.96) | 1.14 | (0.61, 2.12) | 0.97 | (0.55, 1.71) | 1.59 | (0.89, 2.85) | 1.35 | (0.70, 2.57) |
| Immigrated when older (after age 5) | 0.67 | (0.40, 1.11) | 0.80 | (0.47, 1.35) | 0.54* | (0.32, 0.91) | 1.07 | (0.64, 1.77) | 0.98 | (0.56, 1.72) |
| Family composition | | | | | | | | | | |
| Intact family[2] | 1.00 | ... | 1.00 | ... | 1.00 | ... | 1.00 | ... | 1.00 | ... |
| Single-parent family | 1.34 | (0.99, 1.81) | 1.01 | (0.73, 1.40) | 1.35 | (1.00, 1.83) | 0.80 | (0.55, 1.16) | 0.77 | (0.52, 1.13) |
| Step/blended family | 2.44** | (1.35, 4.38) | 1.92 | (0.99, 3.73) | 2.21** | (1.22, 4.03) | 2.04* | (1.15, 3.61) | 1.71 | (0.88, 3.32) |
| Other | 1.48 | (0.69, 3.18) | 1.50 | (0.69, 3.24) | 1.71 | (0.81, 3.62) | 1.14 | (0.55, 2.40) | 1.35 | (0.58, 3.13) |
| School-related variables | | | | | | | | | | |
| University aspirations | ... | ... | 0.62** | (0.46, 0.83) | ... | ... | ... | ... | 0.64** | (0.48, 0.86) |
| Skipping school | ... | ... | 1.83*** | (1.53, 2.20) | ... | ... | ... | ... | 1.51*** | (1.25, 1.81) |
| Negative attitudes towards school | ... | ... | 1.07 | (1.00, 1.15) | ... | ... | ... | ... | 1.06 | (0.98, 1.14) |
| Perception of school safety | ... | ... | 1.21*** | (1.16, 1.26) | ... | ... | ... | ... | 1.15*** | (1.10, 1.20) |
| Victimization variables | | | | | | | | | | |
| Discriminated against | ... | ... | ... | ... | 1.73*** | (1.31, 2.28) | ... | ... | 1.58** | (1.16, 2.14) |
| Bullied | ... | ... | ... | ... | 0.95 | (0.73, 1.24) | ... | ... | 0.99 | (0.74, 1.34) |
| Hit | ... | ... | ... | ... | 2.38** | (1.34, 4.21) | ... | ... | 1.82 | (0.94, 3.52) |
| Stolen from | ... | ... | ... | ... | 2.03*** | (1.53, 2.70) | ... | ... | 1.49** | (1.10, 2.00) |
| Threatened | ... | ... | ... | ... | 2.62*** | (1.64, 4.18) | ... | ... | 2.18** | (1.34, 3.55) |
| Peer and family variables | | | | | | | | | | |
| Positive mother-youth relationship | ... | ... | ... | ... | ... | ... | 0.61* | (0.38, 0.99) | 0.89 | (0.51, 1.53) |
| Positive father-youth relationship | ... | ... | ... | ... | ... | ... | 0.51*** | (0.35, 0.75) | 0.59* | (0.38, 0.91) |
| Goes out at night | ... | ... | ... | ... | ... | ... | 3.02*** | (1.91, 4.78) | 2.76*** | (1.71, 4.48) |
| Time with family | ... | ... | ... | ... | ... | ... | | | | |
| Spends majority of time with family[2] | ... | ... | ... | ... | ... | ... | 1.00 | ... | 1.00 | ... |
| Spends majority of time alone | ... | ... | ... | ... | ... | ... | 1.10 | (0.75, 1.60) | 0.93 | (0.63, 1.37) |
| Spends majority of time with friends | ... | ... | ... | ... | ... | ... | 1.57** | (1.18, 2.09) | 1.38* | (1.04, 1.84) |
| Illegal activities acceptable to peer group | ... | ... | ... | ... | ... | ... | 4.05*** | (3.01, 5.46) | 2.93*** | (2.13, 4.02) |
| Model R-squared | 0.03 | | 0.11 | | 0.08 | | 0.11 | | 0.17 | |

... not applicable
* $p \leq 0.05$
** $p \leq 0.01$
*** $p \leq 0.001$
1. Confidence interval.
2. Reference category.

**Note:** Based on 2,778 youth aged 12 to 17.

**Source:** Statistics Canada, Canadian Centre for Justice Statistics, International Youth Survey, Toronto, 2006.

## How are school-related factors associated with delinquency?

The second model in Table 1 and Table 2 added four school-related variables to the demographic model in order to assess whether or not commitment to school and perceptions of the school environment are associated with self-reported youth delinquency net of the demographic characteristics.

In general, the results showed that variables measuring aspects of commitment to school were significantly associated with delinquency as reported by youth. In particular, youth who indicated that they aspired to attending university had lower chances of reporting involvement in both types of delinquency, while those who indicated that they had skipped school within the last 12 months had higher chances.

Results also showed that perceptions of school safety were associated with self-reported delinquency among youth. In particular, when youth perceived that their school environment was characterized by activities such as fighting, theft, drug use and vandalism, they were more likely to report delinquency: each one-point increase in the unsafe school environment scale corresponded to a roughly 20% increase in both property and violent delinquency. These results suggest that there may be a link between certain elements of the school environment and individual behaviours. Many studies have investigated the possible effects of local contexts such as schools or neighbourhoods on individual behaviour (Sampson, Morenoff and Gannon-Rowley, 2002); however, further research would be necessary to assess whether or not this type of "school effect" is at play in the sample of Toronto youth. There was no evidence that negative attitudes towards school were associated with property or violent delinquency.

The addition of school-related variables reduced the strength of association between the demographic characteristics and the likelihood of reporting property and violent delinquency. This was particularly the case for violent delinquency (Table 2). Although the relationship between sex and delinquency was not strongly influenced by school-related factors, the effects of age and family composition were rendered statistically non-significant.

In the case of property delinquency (Table 1), school-related variables served to reduce, but not fully account for, the effects of the demographic variables. There was a reduction in the effect of living in a single-parent family of about 22% (i.e., the odds ratio was reduced from 1.99, $p \leq 0.001$ to 1.56, $p \leq 0.01$). Similarly, the effects of living in a step/blended family (21%), age (15%) and sex (6%) became weaker, and the compensatory effect of being a recent immigrant was reduced by about 15% (0.40 $p \leq 0.001$ to 0.46 $p \leq 0.01$). Thus, even given similar levels of school commitment, recent immigrant youth were still less likely to report property-related delinquency than native-born youth, while boys, older youth and youth who did not come from intact families remained more likely to report property-related delinquency.

## How are victimization and delinquency related?

In Model 3, we added five variables to the demographic model measuring youth victimization. The different forms of victimization included discrimination (i.e., being treated badly because of religion, language or skin colour), bullying (i.e., being humiliated, hit or kicked, or excluded from a group) and being hit, stolen from and threatened.

The results show that certain types of victimization were associated with delinquency while others were not. The odds of reporting involvement in property delinquency more than doubled for youth who had been stolen from or threatened to give up property in the last year (Table 1). In contrast, there was no evidence that being hit, bullied or discriminated against significantly influenced the chances of youth reporting involvement in property delinquency.

The odds of reporting involvement in violent delinquency were over two and one-half times higher for youth who had been threatened to give up their property, and over two times higher for those who had been hit and for those who had been stolen from (Table 2). Being discriminated against was also associated with greater chances of youth reporting involvement in violent delinquency. Notably, being bullied at school was the only type of victimization that did not have a significant association with committing violent delinquency as reported by youth.

Adding the five victimization variables modestly reduced the effects of sex and age on both types of delinquency, while having no effect or slightly decreasing the odds ratio for family composition. On the other hand, controlling for victimization strengthened the relationship between immigrant status and property delinquency. In particular, the compensatory effect of being a recent immigrant (i.e., arriving after the age of 5 years) increased in the property (13%) delinquency model after controlling for victimization, and became a significant compensatory effect in the violent delinquency model. Thus, given similar levels of victimization, recent immigrant youth were less likely than native-born youth to report property and violent delinquency. In addition, being a second generation immigrant became a significant compensatory effect in the property-related delinquency model. Thus, given similar levels of victimization to native-born youth, second generation youth were less likely to report property delinquency.

## Text box 2

### Who is more likely to report victimization?

Results from the IYS showed that the most commonly reported form of victimization for Toronto youth was theft (27%).[3] Another sizable proportion of youth (21%) reported that they had been bullied in the last year, while a small proportion of youth reported other forms of victimization: 5% of youth reported that they had been threatened, while 3% reported that they had been hit or hurt so much that they needed to see a doctor.

Are there youth who are more at risk of being victimized? In Table 3, the associations between the two most commonly reported forms of victimization (theft and bullying) and the demographic, school-related and peer and family variables are reported.

Notably, these factors do not explain a large amount of the variation in reporting bullying (R-squared = 3%). Age was associated with a lower likelihood of being bullied, with younger youth more likely than older youth to report that they had been bullied, and youth who perceived their school as an unsafe place more likely to report having been bullied or stolen from in the last year.

Younger youth were also more likely than older youth to report having been the victim of theft. There were more risk factors for this type of victimization. Second generation and recent immigrant youth, youth who reported skipping school and going out at night without their parents, and youth with delinquent peers were more likely than other youth to report having been the victim of theft in the last year. Youth who reported a positive relationship with their mother were less likely to report this type of victimization.

#### Who reports discrimination?

In the IYS, youth reported whether or not they had ever been discriminated against because of their religion, race or spoken language. One-third (34%) of youth reported that they had been discriminated against at least once in their lifetime. Associations between this form of victimization and the demographic, school, and peer and family variables are presented in Table 4.

All three generational status groups (i.e., second generation youth, earlier and recent immigrant youth) were more likely than native-born youth to report discrimination. Furthermore, the odds ratio for a recent immigrant youth was higher than that for both earlier immigrant and second generation youth – meaning that recent immigrant youth were more likely than the two other groups to report discrimination.

There was also an association between school attitudes and discrimination: Youth who felt more negatively about school and youth who perceived their school as unsafe were more likely to report discrimination. As well, youth who reported going out at night without their parents were more likely to report discrimination, while youth who reported a positive relationship with their father were less likely to report discrimination.

**Table 3**

**Adjusted odds ratios for self-reported victimization in the previous year among youth by demographic, school, peer and family characteristics, 2006**

| | Bullied | | Stolen from | |
|---|---|---|---|---|
| | odds ratio | 95% CI[1] | odds ratio | 95% CI[1] |
| Sex (male) | 0.97 | (0.77, 1.24) | 1.24 | (0.98, 1.57) |
| Age (in years) | 0.74*** | (0.65, 0.84) | 0.86* | (0.75, 0.98) |
| Generational status | | | | |
| Native-born[2] | 1.00 | ... | 1.00 | ... |
| Second generation | 1.03 | (0.76, 1.41) | 1.42** | (1.11, 1.80) |
| Immigrated when younger (before age 5) | 0.91 | (0.60, 1.39) | 1.24 | (0.82, 1.87) |
| Immigrated when older (after age 5) | 0.91 | (0.69, 1.21) | 1.48** | (1.11, 1.96) |
| Family composition | | | | |
| Intact family[2] | 1.00 | ... | 1.00 | ... |
| Single-parent family | 0.92 | (0.68, 1.24) | 0.91 | (0.65, 1.27) |
| Step/blended family | 1.47 | (0.90, 2.40) | 1.30 | (0.86, 1.96) |
| Other | 1.02 | (0.55, 1.88) | 0.69 | (0.39, 1.21) |
| School-related variables | | | | |
| University aspirations | 0.89 | (0.70, 1.14) | 0.89 | (0.74, 1.07) |
| Skipping school | 1.08 | (0.88, 1.33) | 1.23* | (1.03, 1.46) |
| Negative attitudes towards school | 1.04 | (0.99, 1.10) | 1.00 | (0.95, 1.06) |
| Perception of school safety | 1.10*** | (1.05, 1.16) | 1.15*** | (1.10, 1.19) |
| Peer and family variables | | | | |
| Positive mother-youth relationship | 0.75 | (0.48, 1.16) | 0.67* | (0.49, 0.92) |
| Positive father-youth relationship | 0.82 | (0.58, 1.16) | 1.05 | (0.77, 1.43) |
| Goes out at night | 0.97 | (0.78, 1.22) | 1.26* | (1.00, 1.59) |
| Time with family | | | | |
| Spends majority of time with family[2] | | | | |
| Spends majority of time alone | 1.30 | (0.99, 1.72) | 1.22 | (0.94, 1.58) |
| Spends majority of time with friends | 0.89 | (0.71, 1.11) | 1.21 | (0.98, 1.50) |
| Illegal activities acceptable to peer group | 0.89 | (0.68, 1.15) | 1.31* | (1.02, 1.68) |
| Model R-squared | 0.03 | | 0.06 | |

... not applicable
* $p \leq 0.05$
** $p \leq 0.01$
*** $p \leq 0.001$
1. Confidence interval.
2. Reference category.

**Note:** Based on 2,778 youth aged 12 to 17.
**Source:** Statistics Canada, Canadian Centre for Justice Statistics, International Youth Survey, Toronto, 2006.

**Table 4**

**Adjusted odds ratios for self-reported lifetime discrimination among youth by demographic, school, peer and family characteristics, 2006**

| | Discrimination | |
|---|---|---|
| | odds ratio | 95% CI[1] |
| Sex (male) | 1.15 | (0.97, 1.36) |
| Age (in years) | 0.93 | (0.85, 1.03) |
| Generational status | | |
| Native-born[2] | 1.00 | ... |
| Second generation | 2.51*** | (1.87, 3.37) |
| Immigrated when younger (before age 5) | 3.02*** | (2.10, 4.35) |
| Immigrated when older (after age 5) | 4.14*** | (3.01, 5.69) |
| Family composition | | |
| Intact family[2] | 1.00 | ... |
| Single-parent family | 0.82 | (0.61, 1.10) |
| Step/blended family | 1.23 | (0.76, 2.00) |
| Other | 0.67 | (0.37, 1.20) |
| School-related variables | | |
| University aspirations | 1.06 | (0.86, 1.32) |
| Skipping school | 1.08 | (0.90, 1.29) |
| Negative attitudes towards school | 1.06** | (1.01, 1.11) |
| Perception of school safety | 1.10*** | (1.06, 1.15) |
| Peer and family variables | | |
| Positive mother-youth relationship | 0.81 | (0.55, 1.20) |
| Positive father-youth relationship | 0.69* | (0.52, 0.92) |
| Goes out at night | 1.29* | (1.02, 1.64) |
| Time with family | | |
| Spends majority of time with family[2] | 1.00 | ... |
| Spends majority of time alone | 1.23 | (0.99, 1.54) |
| Spends majority of time with friends | 1.01 | (0.81, 1.24) |
| Illegal activities acceptable to peer group | 1.07 | (0.79, 1.45) |
| Model R-squared | | 0.07 |

... not applicable
* $p \leq 0.05$
** $p \leq 0.01$
*** $p \leq 0.001$
1. Confidence interval.
2. Reference category.

**Note:** Based on 2,778 youth aged 12 to 17.
**Source:** Statistics Canada, Canadian Centre for Justice Statistics, International Youth Survey, Toronto, 2006.

## How do peers and family matter in terms of delinquency?

In Model 4, we introduced family and peer variables to the demographic model, including youth reported perceptions of the quality of their relationship with their mother and father, how and with whom they spent their time (i.e., whether or not they went out at night without their parents and whether or not they spent the majority of time alone, with family or with friends), and the attitudes of their peers towards crime.

Overall, variables related to peers were most strongly associated with self-reported property and violent delinquency. In particular, youth who reported that they were part of a peer group that considered illegal activities acceptable were much more likely to report both types of delinquency than those who were not part of such a group. In this case, the odds of reporting property delinquency were over four and one-half times higher, and just over four times higher for violent delinquency. In addition, the odds of reporting property and violent delinquency were roughly three times higher for youth who indicated that they went out at night than for those who did not. Finally, youth who reported spending most of their free time with friends had higher odds of reporting both property (93%) and violent (57%) delinquency than youth who indicated spending the majority of their free time with family. Youth who reported spending the majority of their free time alone also had higher odds of reporting property-related delinquency (99%) than youth who reported spending the majority of their time with family.

The influence of youth perceptions of the quality of their relationship with their parents varied for property and violent delinquency. Youth who reported a positive relationship with their father were less likely to report violent delinquency. Similarly, youth who reported a positive relationship with their mother were less likely to report violent delinquency. There was no evidence that these variables had an effect on the chances of engaging in property delinquency.

Once peer and family factors were accounted for, recent immigrant youth were just as likely as native-born youth to report property-related delinquency. Recall that in the demographic model, recent immigrant youth were less likely than native-born youth to report property-related delinquency. Once peer and family factors were taken into account, second generation youth became more likely than native-born youth to report violent delinquency. This relationship did not appear in the demographic model.

Being from a step/blended family was still associated with a higher probability of reporting both types of delinquency, as was being from a single-parent family for property-related delinquency. These relationships held true regardless of whether or not youth reported spending the majority of time with family.

Age retained a small independent effect for self-reported property delinquency, while sex retained its effects for both property and violent delinquency. For example, even after all of the peer and family factors were accounted for, the odds of reporting violent delinquency were more than twice as high for male youth as compared to female youth.

## How do all of these factors fit together?

The full models in Table 1 and Table 2 include all of the factors simultaneously in order to assess their relative associations with self-reported youth delinquency. There were some reductions in the observed effects of the school-related, victimization and peer and family variables on property-related and violent delinquency; however, the results showed that most of these variables retained their independent effects after accounting for the other variables.

Variables measuring aspects of peer relationships most significantly increased the odds of reporting delinquency even after controlling for the other factors. In particular, youth who reported being part of a group of friends that considered illegal acts acceptable had odds of reporting property delinquency that were 3.7 times higher, and odds of reporting violent delinquency that were 2.9 times higher, than youth who were not part of such a group. Going out at night also continued to have a large effect on both self-reported property and violent delinquency, net of the other factors (2.6 $p \leq 0.001$ and 2.8 $p \leq 0.001$, respectively).

Finally, after holding constant school-related, victimization and peer and family variables, there were changes in the relationship between the demographic variables and delinquency. With respect to self-reported property delinquency (Table 1), the effects of sex and age were fully accounted for—rendered statistically non-significant—once all of the additional risk factors were added. Notably, it was the combination of all risk factors in the full model rather than any one particular category of risk factors in previous models that fully accounted for the effects of age and sex.

The compensatory effect of being a recent immigrant became statistically non-significant when we controlled for demographic and peer and family factors, and remained non-significant after controlling for all categories of risk factors in the full model. This suggests that it is the different types of relationships that recent immigrant youth have with friends and family that help account for their decreased odds of reporting property-related delinquency. The effects of living in a single-parent and step/blended family were reduced but remained significant in the full model.

In Table 2, the full model results show that youth from step/blended families were no more likely than youth from intact families to report violent delinquency. This result appears to be largely due to the contribution of school-related factors since a similar result was observed in Model 2. No factors, individually or considered together, however, mitigated the effect of sex on violent delinquency. Even after accounting for all of the other factors, the odds of male youth reporting violent delinquency were more than double those of female youth.

## Discussion

This study investigated factors associated with youth delinquency using data from the International Youth Survey (IYS) collected by Statistics Canada in Toronto schools in 2006. Overall, the results indicate that delinquent behaviour is associated with multiple factors linked to the school environment, experiences of victimization, and family and peer relationships. Several of our findings should be highlighted.

First, the results showed that youths' views of, and commitment to, school were linked to delinquent behaviour. Specifically, skipping school, lacking university aspirations and viewing the school as unsafe were all associated with greater chances of engaging in both property and violent delinquency. Notably, school factors were related to delinquency regardless of the other characteristics of individuals. These results are consistent with previous research emphasizing the importance of the school environment in shaping youth behaviour and outcomes (Fitzgerald, 2003; Resnick et al., 1997).

Second, we found evidence of a link between victimization and delinquent behaviour. This was particularly the case for violent delinquency, where those who had been stolen from, had received threats to give up their belongings, or had experienced discrimination because of their 'religion, language or race' also had significantly higher chances of engaging in violent delinquency. These relationships held even after accounting for other youth characteristics and risk factors. Our findings coincide with the results of previous studies linking victimization to subsequent serious violent offending among youth (Loeber, Kalb and Huizinga, 2001), and suggest that exposure to particular forms of victimization may have serious implications for youths' own behaviour.

Third, the results presented here demonstrate that youths' relationships with family-members and friends are important factors in understanding delinquent behaviour. In particular, youth who tended to go out at night without their parents, and who spent the majority of their time with friends, rather than family-members, were more likely to engage in both property and violent delinquency. In addition, having a positive relationship with one's father or mother significantly reduced the chances of being involved in violent delinquency. Taken together, these results continue to emphasize the importance of effective parental monitoring and positive parent-child relationships in understanding youth behaviour that have been noted in other studies (Amato and Fowler, 2002).

Above all, this study provides evidence that exposure to delinquent peer networks has important implications for youths' own behaviour. Specifically, the attitudes of friends emerged as the most important correlate of both property and violent delinquency after taking into account all other factors in the study. Thus, youth who indicated that committing illegal acts was accepted by members of their

peer group, had significantly greater probabilities of engaging in both property and violent delinquency than those who did not. This finding is consistent with other research suggesting that belonging to a peer group in which social controls against crime are weak, may facilitate the development of delinquent behaviours among youth (Bursik and Grasmick, 1993).

## Limitations and future research

A number of limitations must be acknowledged in considering the results in this study. To begin with, the IYS does not track the same respondents over time, rather, the survey design is cross-sectional in nature. As a result, it is not possible to determine the timing, nor the causal ordering of events. Second, the survey was only given to youth who received parental consent and were at school on the day the survey was administered. Since the study found that skipping school was associated with increased delinquency, it is possible that delinquency was underreported since youth who were most likely to report committing delinquency may not have been present to participate. Third, an important limitation in this study is the lack of information on the socioeconomic characteristics of families, such as household income and parental education and occupation. Although this information is not available directly through the IYS, future work could make use of Census data to examine the relationship between self-reported youth delinquency and the socioeconomic conditions of the population residing in the neighbourhoods in which schools are located. And, finally, while the IYS collects the country of birth for both parents and youth, it is not possible to determine ethnicity or visible minority status. This places an important limitation on the findings, as both of these factors are important in terms of education and delinquency outcomes, especially for immigrant youth (Zhou, 1997).

# Methodology

## Data source

The data source for this study is the International Youth Survey (IYS) conducted by Statistics Canada in 2006. The main objectives of this survey are to measure the prevalence and incidence of various types of self-reported delinquent behaviours among youth in industrialized countries, to review the variability and correlates of self-reported youth delinquency and to provide detailed data in support of national policy development.

The target population for this survey was youth in grades 7, 8 and 9 from 175 schools in the Toronto census subdivision. Schools in the Toronto Public School Board and private schools participated in the survey.

Schools were first stratified by grade and geographic area, and a sample of schools was selected in each stratum systematically with probability proportional to size, where size was measured as the number of students in the chosen grades. This strategy was designed to provide an adequate representation of the various Toronto neighbourhoods including the city's demographic and socioeconomic characteristics. Selected schools were then visited in order to obtain the principal's consent. Once this was granted, interviewers randomly selected classes in the desired grades. Students in the selected classes were asked to obtain parental consent in order to participate in the survey. The survey was administered to students in April and May 2006. The sample size was 3,290 students across 177 classes; after weighting, this represented 60,900 students. Greater detail on the survey design and methodology are available in Savoie (2007).

## Analytical techniques

A combination of bivariate and multivariate statistical techniques was used in this study. As we are interested in the relative impact of three different groups of factors in explaining youth delinquency (i.e., school variables, victimization, and peer and family relationships), each of these groups of factors are presented in separate logistic regression models that control only for the factor of interest and demographic variables. After we present these factors separately, we then present them all together in a full model to assess whether or not they retain their unique effects on property-related and violent delinquency. Cross tabular analyses were also conducted to compare various groups (e.g., by generational status and age) along various risk factors such as victimization and time spent with family. Respondents who were missing responses for any of the variables used in the logistic regression analysis were excluded.[4] This reduced the sample size by 16 % from approximately 3,300 youth to 2,778.[5]

As some variables appeared to be highly correlated (e.g., the school variables), variance inflation factors and tolerance were calculated to check for multicollinearity in the models. The results were found to be within acceptable ranges.

Cross-sectional weights accounted for unequal probabilities of sample selection. To account for the complex sample design, the bootstrap technique was used to estimate coefficients of variation, confidence intervals and to test for statistical significance of differences (Rao, Wu and Yue, 1992; Rust and Rao, 1996).

## Odds ratio

When an outcome variable for a regression model is dichotomous (e.g., committing a delinquent act versus not committing a delinquent act), researchers are interested in determining the probability of the occurrence of that event under a particular set of circumstances (e.g., having low income, being female, or living in a single-parent family). In this case, logistic regression is the most appropriate technique to use.

An odds ratio is a statistic generated by a logistic regression and, in this study, was used to assess whether, other things being equal, youth with specific characteristics are more or less likely to engage in delinquent behaviour than those in another (reference) group. For example, consider the risk of delinquency for youth from a low income background compared to those from an average income background, the reference category: An odds ratio near 1.0 implies that there is no difference in delinquency between the two groups; an odds ratio that is less than 1.0 implies that those in the group being considered (i.e., youth from a low income background) are less likely to be delinquent than those in the reference group; and an odds ratio that is greater than 1.0 implies that those in the group being considered are more likely to be delinquent than those in the reference category.

When an explanatory variable is continuous (e.g., age measured in years), the odds ratio indicates how much the ratio P/(1-P) is greater or less than a one unit increase of this variable (e.g., for an individual who is one year older than another individual). For example, an odds ratio of 2.0 indicates that the odds of delinquent behaviour are twice as high for a 12-year-old as they are for an 11-year-old.

## Description of variables

### Dependent variables

#### Property delinquency

The property delinquency variable was derived from the following seven questions: In the past 12 months have you, damaged something on purpose, such as a bus shelter, window, car or seat on a bus or train? Stolen something from a store? Broken into a building with the purpose of stealing something? Stolen a bicycle? Stolen a motorbike or car? Stolen something out of or from a car? Set fire on purpose to a mailbox, garbage can, building or car (not your own property)?

The property delinquency variable contained two categories, where 1 indicated that youth reported at least one property-related delinquent act within the last 12 months, and 0 indicated that youth did not report such an act within the last 12 months.

### Violent delinquency

Violent delinquency was measured using five questions: In the past 12 months have you, snatched a purse, bag or something else from a person? Carried a weapon, such as a stick, chain or knife (not a pocket knife)? Threatened somebody with a weapon or threatened to beat them up to get money or other things from them? Participated in a group fight on a school playground, a football stadium, in a street, or in any other public place? Intentionally beaten up someone, or hurt them with a stick or knife, so badly that they had to see a doctor?

The violent delinquency variable contained two categories, where 1 indicated that youth reported at least one violent delinquent act within the last 12 months, and 0 indicated that youth did not report such an act within the last 12 months.

## Independent variables

### Generational status

Generational status is a concept derived from the youth's place of birth, his or her parents' place of birth, and, if applicable, the age at which the youth immigrated to Canada. This is in accordance with previous research which shows that educational attachment and achievement vary for youth depending on these factors (Aldous, 2006; Dinovitzer, Hagan and Parker, 2003; Kao and Tienda, 1995). For this analysis, youth were divided into four groups: native-born (youth and parents were born in Canada); second generation (youth was born in Canada; at least one parent is foreign-born); earlier immigrant, or youth who immigrated before the age of 5 (both parents are foreign-born, youth is foreign born and the youth immigrated **before the age of 5**); and recent immigrant, or youth who immigrated after the age of 5 (both parents are foreign-born, youth is foreign-born and immigrated **after the age of 5**).

### Family composition

Youth were coded to one of four family-types according to their responses to a series of questions about with whom they lived. Options included an intact family (birth mother and father), single-parent family (either birth mother or birth father), step/blended family (either birth mother and stepfather or birth father and stepmother) or another family situation (grandparents, aunt, brother/sister, foster family or someone else).

### Other demographic characteristics

The logistic regressions in these models also controlled for sex and age which ranged from 12 to 17. Since there were few youth aged 16 and 17, these two age categories were collapsed into one (16 years). Descriptive statistics for the variables used in this study are presented in the Appendix.

## School-related variables

### Negative attitudes towards school

Youth were asked a series of questions about their feelings towards or

observations about school. Three of these capture positive feelings towards school. On a 4-point scale where 1 corresponded to the most positive feelings and 4 corresponded to the least positive feelings, youth were asked: 'Do you usually like school'; 'If I had to move I would miss my school'; and 'I like my school'. Responses were added together to form a scale which ranged from 0 (youth who feel very positively towards school) to 9 (youth who disagree with positive statements about school). The reliability coefficient (Cronbach's alpha) for the negative attitudes towards school scale was =.73.[6]

#### Perception of school safety

Youth were asked to rate, on a scale of 1 to 4 (where 1 corresponds to fully agree and 4 corresponds to fully disagree), how much they agreed with these statements: 'There is a lot of stealing in my school'; 'There is a lot of fighting in my school'; 'Many things are broken or vandalized in my school'; and 'There is a lot of drug use in my school'. These items were reversed and added together to form a scale which ranged from 0 (youth who perceived their school as safe) to 12 (youth who perceived their school as unsafe). This scale had a Cronbach's alpha of .76.[6]

#### University aspirations

Youth were asked what level of education they aspired to. A dichotomous (or two-category) variable was derived where 1 corresponded to graduating from high school and attending university and 0 corresponded to educational aspirations at the college or trade school level, high school, or non-completion of high school.[7]

#### Skipping school

Youth were asked if and how often they had skipped school in the last 12 months. This variable took the value of 0 (not having skipped), 1 (skipped 1 or 2 times), or 2 (skipped 3 or more times).

### Victimization variables

#### Victimization

Youth reported whether or not they had experienced four different forms of victimization. Specifically they were asked whether, in the past 12 months, 'Someone wanted you to give him/her money or something else (watch, shoes, cell phone) and threatened you if you did not do it?'; 'Someone hit you violently or hurt you so much that you needed to see a doctor?'; 'Something was stolen from you (such as a book, money, cell phone, sport equipment, bicycle...)?'; or 'You were bullied at school (other students humiliated you or made fun of you, hit or kicked you, or excluded you from their group)?'.

These variables were included separately in the logistic regression models. For each type of victimization, 1 corresponded to having experienced the behaviour one or more times in the last 12 months, while 0 corresponded to not having experienced the behaviour.

### Discrimination

In addition, youth were asked about their experiences of discrimination, or specifically, 'Have people ever treated you badly because of your religion or the language you speak, or the colour of your skin?' Youth who replied once, sometimes or often were coded a value of 1, while youth who responded never were coded a value of 0.

## Peer and family variables

### Positive mother-youth relationship

Youth were asked 'how do you usually get along with the woman you live with (your mother or stepmother)'. Response categories included 'I get along just fine', 'I get along rather well', 'I don't get along so well', 'I don't get along at all' and 'There is no mother or other woman in the house'. A dichotomous variable was created that gave a value of 1 to youth who replied either the first or second categories as a measure of a positive relationship. Youth who reported that there was no woman in the house were coded a value of 0, along with youth who did not report having a positive relationship with their mother.

### Positive father-youth relationship

Youth were asked 'how do you usually get along with the man you live with (your father or stepfather)'. Response categories included 'I get along just fine', 'I get along rather well', 'I don't get along so well', 'I don't get along at all' and 'There is no father or other man in the house'. A dichotomous variable was created that gave a value of 1 to youth who replied either the first or second categories as a measure of a positive relationship. Youth who reported that there was no man in the house were coded a value of 0, along with youth who did not report having a positive relationship with their father.

### Goes out at night

Youth indicated whether or not they went out at night without their parents and responses were coded a value of 1 if youth reported going out at night without their parents and 0 if youth reported that they did not go out at night.

### Time spent with family

Youth were asked with whom they spent most of their free time. They were coded into three groups: youth who reported spending most of their free time alone; those who reported spending most of their free time with family; or those who reported spending most of their free time with friends. Youth who reported spending the majority of their free time with family were the reference category.

### Illegal activities acceptable to peer group

Youth were asked if committing illegal acts was accepted by or okay for their peer group. Youth who reported yes were coded a value of 1, while youth who replied no or that they did not have a group of friends were coded a value of 0.

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# Appendix

**Table A.1**

**Descriptive statistics for variables in the study**

| | Percentage | Mean | Standard deviation | Minimum number | Maximum number |
|---|---|---|---|---|---|
| Dependent variables | | | | | |
| Property delinquency | 12.61 | ... | ... | 0 | 1 |
| Violent delinquency | 13.36 | ... | ... | 0 | 1 |
| Demographic variables | | | | | |
| Male | 51.49 | ... | ... | 0 | 1 |
| Age (in years) | ... | 13.29 | 0.96 | 12 | 16 |
| Generational status | | | | | |
| Native-born | 21.76 | ... | ... | 0 | 1 |
| Second generation | 47.12 | ... | ... | 0 | 1 |
| Immigrated when younger (before age 5) | 9.40 | ... | ... | 0 | 1 |
| Immigrated when older (after age 5) | 21.72 | ... | ... | 0 | 1 |
| Family composition | | | | | |
| Intact family | 73.84 | ... | ... | 0 | 1 |
| Single-parent family | 18.33 | ... | ... | 0 | 1 |
| Step/blended family | 5.07 | ... | ... | 0 | 1 |
| Other | 2.77 | ... | ... | 0 | 1 |
| School-related variables | | | | | |
| University aspirations | 69.17 | ... | ... | 0 | 1 |
| Skipping school | ... | 0.32 | 0.60 | 0 | 2 |
| Negative attitudes towards school | ... | 2.55 | 2.01 | 0 | 9 |
| Perception of school safety | ... | 4.72 | 2.92 | 0 | 12 |
| Victimization variables | | | | | |
| Discriminated against | 33.61 | ... | ... | 0 | 1 |
| Bullied | 20.58 | ... | ... | 0 | 1 |
| Hit | 2.82 | ... | ... | 0 | 1 |
| Stolen from | 27.38 | ... | ... | 0 | 1 |
| Threatened | 4.55 | ... | ... | 0 | 1 |
| Peer and family variables | | | | | |
| Positive mother-youth relationship | 94.23 | ... | ... | 0 | 1 |
| Positive father-youth relationship | 84.65 | ... | ... | 0 | 1 |
| Goes out at night | 77.00 | ... | ... | 0 | 1 |
| Time with family | | | | | |
| Spends majority of time with family | 36.72 | ... | ... | 0 | 1 |
| Spends majority of time alone | 20.22 | ... | ... | 0 | 1 |
| Spends majority of time with friends | 43.05 | ... | ... | 0 | 1 |
| Illegal activities acceptable to peer group | 16.03 | ... | ... | 0 | 1 |

... not applicable
0 true zero or a value rounded to zero
**Note:** Based on 2,778 youth aged 12 to 17.
**Source:** Statistics Canada, Canadian Centre for Justice Statistics, International Youth Survey, Toronto, 2006.

# Endnotes

1. For detailed information on the age, sex and grade breakdown of youth who reported delinquency in the survey see Savoie (2007).
2. For a more detailed description of variables used in this analysis refer to the Description of variables portion of the Methodology section.
3. Discrimination is not included in this figure as it is reported over the lifetime, as opposed to within the last year. As well, figures are slightly different from those reported in Savoie (2007) because the current sample is slightly different (i.e., it excludes cases that are missing the variables of interest).
4. Cases in which the youth reported all of the independent variables and at least one delinquent act were included even if the youth did not respond to all of the delinquency questions. However, the majority of youth replied to most of the delinquency questions: 98% of youth responded to more than one-half of both the property-related and violent delinquency questions.
5. Missing data analysis showed that non-respondents were roughly similar to respondents in terms of age and sex, but were slightly less likely to come from an intact family and slightly more likely to be born outside of Canada.
6. Cronbach's alpha is a measure of internal consistency, based on the average correlation between items. It is assumed that items are positively correlated with each other because they are attempting to measure a common construct; therefore, a Cronbach's alpha close to 1 indicates a perfect consistency between items. A suggested level of reliability is typically .80 or greater; however, this may vary by the type of data.
7. The effect of all postsecondary aspirations where 1 corresponded to aspiring to any type of postsecondary education and 0 corresponded to no postsecondary school aspirations was not significant.

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